WHAT IS CLAIMED IS:

1. A phase-shifting circuit comprising:

an input terminal of a high frequency signal;

an output terminal of the high frequency signal;

a first parallel circuit which is connected across said input terminal and said output terminal, which is composed of a first inductor and a first switching element that exhibits a through state or resistive property in an ON state and a capacitive property in an OFF state, and which produces parallel resonance at a prescribed frequency when said first switching element is in the OFF state;

a series circuit which is connected in parallel with said first parallel circuit, and which is composed of a second inductor and a third inductor that have a reactance sufficiently larger than a resistance of said first switching element in the ON state;

a capacitor having its first terminal connected to a point of connection of said second inductor and said third inductor;

a second parallel circuit which is connected across a second terminal of said capacitor and a ground, which is composed of a fourth inductor and a second switching element that exhibits a through state or resistive property in an ON state and a capacitive property in an OFF state, and which produces parallel resonance at a prescribed frequency when said second switching element is in the OFF state; and

applying means of control signals for establishing a first operation mode and a second operation mode by switching between them, said first operation mode setting said first switching element at the ON state and said second switching element at the OFF state, and said second operation mode setting said first

switching element at the OFF state and said second switching element at the ON state.

2. The phase-shifting circuit according to claim 1 comprising instead of said capacitor:

a third switching element that exhibits a through state or resistive property in an ON state and a capacitive property in an OFF state, wherein

said applying means sets said third switching element at an ON state in the first operation mode and at an OFF state in the second operation mode.

3. The phase-shifting circuit according to claim 1, wherein

said second parallel circuit is replaced by said second switching element only; and

a combined capacitance of said capacitor and a capacitance of said second switching element in the OFF state is set at a substantially open state.

4. The phase-shifting circuit according to claim 2, wherein

said second parallel circuit is replaced by said second switching element only; and

a combined capacitance of said capacitor and a capacitance of said second switching element in the OFF state is set at a substantially open state.

5. The phase-shifting circuit according to claim 1, wherein said first parallel circuit and second parallel circuit each have a capacitor connected in parallel with them.

6. The phase-shifting circuit according to claim 2, wherein said first parallel circuit and second parallel circuit each have a capacitor connected in parallel with them.

7. The phase-shifting circuit according to claim 3, wherein said first parallel circuit and second switching element each have a capacitor connected in parallel with them.

8. The phase-shifting circuit according to claim 4, wherein said first parallel circuit and second switching element each have a capacitor connected in parallel with them.

9. A phase-shifting circuit comprising:

an input terminal of a high frequency signal;

an output terminal of the high frequency signal;

a through/open switching element which is connected across said input terminal and said output terminal, and sets a transmission line at a through state or open state in response to a control voltage;

a first inductor having its first terminal connected to said input terminal;

a second inductor having its first terminal connected to said output terminal;

a through/shunt capacitance switching element which is connected to a second terminal of said first inductor and to a second terminal of said second inductor, and sets a transmission line in a through state or capacitance state in response to a control voltage; and

applying means of control voltages for establishing a first operation mode and a second operation mode by switching between

them, said first operation mode setting said through/open switching element and said through/shunt capacitance switching element at a through state simultaneously, and said second operation mode setting said through/open switching element at an open state and said through/shunt capacitance switching element at a capacitance state.

10. The phase-shifting circuit according to claim 9, wherein said through/open switching element comprises:

a substrate having a cavity formed by digging down into a single-side of said substrate;

a contact metal formed at the center of an undersurface of said cavity;

a control electrode formed around said contact metal on the undersurface of said cavity;

a dielectric supporting film which is supported by edges of said cavity at a location facing to said contact metal and said control electrode, which has a pair of through holes at positions facing to said contact metal, and which is located over a hollow of said cavity via an air layer in a normal state in which no control voltage is applied to said control electrode;

a pair of high frequency signal transmission lines which are placed on said dielectric supporting film across a gap, and which have conductive projections facing to said contact metal through said pair of through holes at an underside of said dielectric supporting film;

a ground metal placed on said dielectric supporting film at a location corresponding to said control electrode, wherein

the control voltage, when applied to said control electrode, brings about electrostatic attraction between said control

electrode and said ground metal, which electrostatic attraction causes displacement of said dielectric supporting film toward the undersurface of said cavity to bring said conductive projections into contact with said contact metal, thereby bringing about a through state between said pair of high frequency signal transmission lines.

11. The phase-shifting circuit according to claim 9, wherein said through/shunt capacitance switching element comprises:

a substrate having a cavity formed by digging down into a single-side of said substrate;

a beltlike first ground metal formed at the center of an undersurface of said cavity;

a control electrode formed on both sides of said first ground metal on the undersurface of said cavity;

a dielectric supporting film which is supported by edges of said cavity at a location facing to said first ground metal and said control electrode, and which is located over a hollow of said cavity via an air layer in a normal state in which no control voltage is applied to said control electrode;

a high frequency signal transmission line which is placed on said dielectric supporting film at a location facing to said first ground metal;

a second ground metal formed on said dielectric supporting film at a location facing to said control electrode, wherein

the control voltage, when applied to said control electrode, brings about electrostatic attraction between said control electrode and said second ground metal, which electrostatic attraction causes displacement of said dielectric supporting film toward the undersurface of said cavity to bring said

dielectric supporting film into contact with said first ground metal, thereby causing said high frequency signal transmission line to have a capacitance with said first ground metal.

12. The phase-shifting circuit according to claim 9, wherein said through/open switching element comprises:

a substrate having a cavity formed by digging down into a single-side of said substrate;

a pair of high frequency signal transmission lines which are formed at the center of an undersurface of said cavity across a gap;

a ground metal formed on both sides of said pair of high frequency signal transmission lines on the undersurface of said cavity;

a dielectric supporting film which is supported by edges of said cavity with facing to a region including the gap of said pair of high frequency signal transmission lines, and which is located over a hollow of said cavity via an air layer in a normal state;

a contact metal formed on an undersurface of said dielectric supporting film facing to the region including the gap of said pair of high frequency signal transmission lines; and

a control electrode formed on a top surface of said dielectric supporting film with facing to said ground metal, wherein

the control voltage, when applied to said control electrode, brings about electrostatic attraction between said control electrode and said ground metal, which electrostatic attraction causes displacement of said dielectric supporting film toward the undersurface of said cavity to bring said contact metal into

contact with said pair of high frequency signal lines, thereby bringing about a through state between said pair of high frequency signal transmission lines.

13. The phase-shifting circuit according to claim 9, wherein said through/shunt capacitance switching element comprises:

a substrate having a cavity formed by digging down into a single-side of said substrate;

a beltlike high frequency signal transmission line formed at the center of an undersurface of said cavity;

a ground metal formed on both sides of said high frequency signal transmission line on the undersurface of said cavity;

a dielectric supporting film which is supported by edges of said cavity with facing to a region of said high frequency signal transmission line and said ground metal, and which is located over a hollow of said cavity via an air layer in a normal state;

a control electrode formed on a top surface of said dielectric supporting film with facing to said ground metal; and

a metal which is formed on the top surface of said dielectric supporting film with facing to said high frequency signal transmission line, and which is placed at an equipotential with the ground, wherein

the control voltage, when applied to said control electrode, brings about electrostatic attraction between said control electrode and said ground metal, which electrostatic attraction causes displacement of said dielectric supporting film toward the undersurface of said cavity to bring said dielectric supporting film into contact with said high frequency signal

transmission line, thereby causing said high frequency signal transmission line to have a capacitance with said metal.

14. A multibit phase shifter comprising a plurality of phase-shifting circuits of claim 1, which are connected in a multistage fashion and each operate as a 1-bit phase-shifting circuit.

15. A multibit phase shifter comprising a plurality of phase-shifting circuits of claim 2, which are connected in a multistage fashion and each operate as a 1-bit phase-shifting circuit.

16. A multibit phase shifter comprising a plurality of phase-shifting circuits of claim 3, which are connected in a multistage fashion and each operate as a 1-bit phase-shifting circuit.

17. A multibit phase shifter comprising a plurality of phase-shifting circuits of claim 4, which are connected in a multistage fashion and each operate as a 1-bit phase-shifting circuit.

18. A multibit phase shifter comprising a plurality of phase-shifting circuits of claim 5, which are connected in a multistage fashion and each operate as a 1-bit phase-shifting circuit.

19. A multibit phase shifter comprising a plurality of phase-shifting circuits of claim 9, which are connected in a

multistage fashion and each operate as a 1-bit phase-shifting circuit.